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## NEW GENERIC TYPES OF BOMBYCINE MOTHS.

BY ALPHEUS S. PACKARD.

The following descriptions of new genera are published in advance of the monographic revision of the families to which they are here referred. All of the genera of Hemileucidæ are from the neogæic realm, or the tropical region of Mexico, and the South American continent.

Family HEMILEUCIDÆ.

**Rhodormiscodes**, gen. nov.

*Imago*. — Male. Front of the head a little broader than in *Ormiscodes*. Antennæ shorter and wider than in that genus; as usual pectinated to the tip, the extremity of which is subfiliform; antennal joints shorter than in *Ormiscodes*. Two pairs of pectinations, the distal pair larger than in *Ormiscodes*, those on the inner side only slightly shorter than those on the outer side. Palpi ascending and projecting beyond the front, much larger, longer and wider, with shorter closer squamation, than in *Ormiscodes*; third joint distinct, about one half as long as second joint is wide, while in *Ormiscodes* they are depressed, small, short and indistinct, and with irregular scales.

Thorax with scattered long flattened hairs, as in *Ormiscodes*.

Fore wings more falcate than in *Ormiscodes*, costa fuller, more convex toward apex; outer edge short; wings subfalcate, but not excavated behind the apex. Hind wings regularly rounded on the apex and inner angle, much more so than in *Ormiscodes*, and of quite different shape from that genus.

Venation: Vein II 1 arises near the outer end of the discal cell, *i. e.*, much nearer the origin of the anterior discal vein, and the two discal veins make a straight line, not an oblique one as in *Ormiscodes cinnamomea*, and they are situated inside of the middle of the wing. In the hind wing veins II 1, 2, 3 arise farther apart than in *O. cinnamomea*.

Markings: No white discal spot, but an irregular dark one. Purple tints with purple-brown markings, and roseate hind wings. The abdomen is banded with yellow and black.

This genus is based on *Ormiscodes rosea* Druce.

*Geographical Distribution*. — Vera Cruz, Mexico (Franck).

This genus differs from *Ormiscodes* not only in the venation, but in the larger palpi, the shorter, broader antennæ, subfalcate fore wings and more rounded hind wings. The thorax is equally shaggy and wooly and the legs thick and hairy. In the shape of the fore wings and absence of a discal spot it somewhat approaches *Hylesia*.

**Hyperdirphia**, gen. nov.

*Imago*. — Male. Head narrower in front than in *Dirphia* (*D. hageri*). Antennæ of male the same as in *Dirphia* (*D. hageri*), pointed at the end and pectinated to the tip; the distal pectinations being a little shorter, so that the tip is more prolonged, filiform, than in *Dirphia*. Eyes large, decidedly more prominent and globose than in *Dirphia*. Palpi very much larger and wider than in *Dirphia* and extending well beyond the front; third joint distinct.

Thorax normal, not shaggy, but with a soft, rather short fur-like coat, with no long thickened hairs, such as are characteristic of *Dirphia* (*D. hageri*).

Fore wings very short and broad, costa regularly arched, apex squarish, outer edge much as in *D. hageri*, though less oblique. Hind wings large and wide, outer edge full and rounded, extending a little beyond the abdomen.

Venation: The discal cell is broader and the two discal veins taken together are more oblique than in *Dirphia*; also vein II 1 arises nearer the origin of the anterior discal vein, *i. e.*, much nearer the outer end of the discal cell. In the hind wings the outer side of the discal cell is more oblique, and the posterior discal vein longer than in *Dirphia*.

Abdomen banded as in *Dirphia hageri*.

Markings: The ground color of the fore wings a frosty, tawny hue, with a peculiar, very large brown discal spot one half as wide as the wing itself, and broken up by the discal veins and vein IV, which are snow-white. No basal or extradiscal lines in male, but they are present in female. Hind wings ochreous tawny, with a slight dusky discal streak; no discal spots beneath.

The type of this genus is Cramer's *Attacus tarquinia* (Papillons Exotiques, I, p. 6, Pl. IV, A, ♀, B, C, ♂, from Surinam; my example coming from French Cayenne).

This genus, represented by a single species, is interesting as being a connecting link between the *Dirphia* group and the *Automeris* group of genera. At first sight it would be mistaken for an *Automeris* or ally of that genus, but on closer examination it will be found to be more nearly allied structurally to *Dirphia*, especially the *hageri* section. It is a mistake, however, to refer it to *Dirphia*, since it decidedly differs besides the extraordinary style of coloration, in the much larger and longer palpi, the narrower front of the head, and the more elongated tip of the male antennæ. It is an intermediate form very decidedly linking *Dirphia* with *Protautomeris* and the *Automeris* group of generic forms.

**Protautomeris**, gen. nov.

*Imago*. — Male. Head moderately broad, narrowing somewhat towards the labial region. Antennæ of male much as in *Dirphia* (*D. hageri*), not very long but differing from *Dirphia* in the extreme tip being subfiliform; the distal pectinations about three quarters as long as the basal ones; the joints in the middle of the antennæ rather short.

Palpi stout, porrect, slightly exceeding the front, and with close scales; third joint distinct, but short and somewhat depressed.

Thorax stout, with a few fine slender but long hair-like scales, *i. e.*, flattened hairs, on each side of the patagia.

Fore wings much as in *Automeris*, the wings more falcate than in *Dirphia*; costa well curved before the apex which is subacute; outer edge much shorter than the inner and very slightly concave. Hind wings much rounded at the apex; outer edge full and convex, the inner angle extending as far as the tip of the abdomen. Venation: Differs from that of *Automeris io* in vein II (first subcostal) arising nearer the middle of the discal space, while the independent vein arises near the middle of the discal space, *i. e.*, the two discal veins are of nearly the same length, while in *A. io* the anterior discal is very much shorter than the posterior. In the hind wings the discal cell is narrower than in *A. io*.

Colors and markings: Very similar to those of some of the species of *Automeris*. A curved irregularly scalloped basal line; extradiscal line strongly marked, oblique, a little curved and ending as in *Automeris* at the apex. Ocellus faint, much as in *Automeris*. Hind wings with a well-marked very large ocellus of the *Automeris* type and partly surrounded by a heavy black extradiscal line.

Abdomen lake-red, but tawny yellowish at tip.

This genus is based on *Dirphia maonia* of Druce, the only species yet known.

*Geographical Distribution.* — So far as yet known the single species of the genus is confined to Mexico, but may be found to extend into Central America.

This rather remarkable genus is a very interesting annectant form between the two principal subdivisions of the family Hemileucidæ represented by *Dirphia* and *Automeris*. It differs from *Dirphia* and *Hyperdirphia* in the much smaller palpi, which are much as in *Automeris*, being of about the same length, though the antennæ are of the same shape as in the two former genera. In the shape of the wings it approaches *Automeris*, and still more in the markings in which it is in advance of its structural features, having the oblique extradiscal line of the fore wings, and the very large and perfect ocellus of the hinder ones. The erect long thoracic hair-like thoracic scales may be an inheritance from *Dirphia*, while in the single known species the abdomen is not striped with dark and yellow, but is reddish carmine. It is most probable that the *Automeris* group originated from a form similar to this. Its larval history would be most interesting.

### **Eussyssaura**, gen. nov.

*Syssaura* HUEBNER (in part), Verzeichniss, p. 150, 1816 (1822?).

*Oxytens* WALKER, Cat. Lep. Het. Br. Mus., V, p. 1181, 1855. KIRBY, Syn. Cat. Lep. Het., I, p. 770, 1892.

♂ Male. Front of the head rather short and unusually broad; it is not exactly square as in *Oxytenis*, but is a little narrower in front than on the vertex. Male antennæ well pectinated to the tip; the branches being long and ciliated, and drooping so as to be folded close together as in *Platypteryx*, etc., not spread wide open as usual in the Saturniidae; the antennal joints are short, bearing but a single pair of pectinations, but they are so close as to appear as if there were two pairs to a joint. Maxillary palpi well developed, united, quite long, much longer than usual in the group, reaching down to the base of the labial palpi. Maxillary palpi well developed, in my example distinct, slender, and as long as the two maxillæ measured across their base. Labial palpi unusually large and thick, blunt at the end, being considerably larger and thicker than in *Oxytenis* (*O. lamis*); the basal joint short; the second very long and large, thick, extending very far (for this family) beyond the front; third joint small, depressed, not so distinct as in *O. lamis*. Eyes moderately large.

Fore wings of almost exactly the shape of those of *Platypteryx*, the apex being much more produced than in *Oxytenis* and square at the tip; the costa is much curved towards the apex; outer edge deeply excavated towards the apex; inner angle rectangular. Venation: Very different from that of *Oxytenis* since *II* 1 is very short arising not within the origin of the discal vein but far out near the end of *I*. *II* 2 wanting. In both wings the forward discal vein much curved inward, the hinder vein oblique and not curved. Hind wings full, apex not so round as in *Oxytenis*, more angular; outer edge regularly convex and rounded; inner edge nearly straight and long; the end of the abdomen reaches a little beyond the middle of the hind wings. Venation: remarkable for the presence of a long vestige of vein *VIII*.

The markings are almost exactly of the pattern of those of *Platypteryx*. The general color is that of a dead leaf; on the fore wings is an extradiscal distinct oblique line, beginning on the middle of the inner edge and extending obliquely, but not wavy, to the apex. A zigzag line beyond; this oblique line extends to the hind wings, where it is also distinct, straight; beyond it is a zigzag line. Discal dots minute, black accompanied on the fore wings by a few white scales.

The type of this genus is *Attacus honesta* Stoll, *IV*, t. 302, C, D, 1781. Druce's *Oxytenis malacena* from Panama is a member of this genus, the species of which range from Nicaragua to the Amazons.

### **Mesoleuca**, gen. nov.

*Hemileuca* WALKER, in part, Cat. Lep. Het. Br. Mus., VI, 1855, p. 1319.

*Imago*. — Male. Closely allied to *Hemileuca* but differing in the larger, longer palpi, the shorter wings, and in the venation.

Head as in *Hemileuca*, hairy and shaggy in front, of about the same width between the eyes, which are of the same size as in *Hemileuca*. The antennæ differ in the joints being longer, so the pectinations are farther apart, but in their length and hairiness the two genera are similar. Palpi much longer and more distinct than in *Hemileuca*, projecting well beyond the front, but the hairs on them are bushy or shaggy and irregular. The thorax and abdomen are as in *Hemileuca*.

Fore wings rather shorter and broader, and the hind wings broader and rather more rounded at apex. The hind wings extend as far as the end of the abdomen. The venation in general is as in *Hemileuca*, but with the notable difference from any

other genus of Hemileucidae that vein II 5 arises rather far from the origin of III 1, far from the discal veins; the latter also are oblique, especially the posterior one. Hind wings with the discal veins very oblique, the other veins much as in *Hemileuca*.

Markings: wings all pale, tending to ochreous whitish, the veins being dark, distinct; no discal spot and no bars, only a submarginal brown line common to both wings.

There are no long flattened hairs on the thorax.

The type of this genus is *Hemileuca venosa* Walker.

The species is confined to northeastern South America, *M. venosa* occurring in Venezuela (Caracas) and Colombia (Bogota). My example was compared with Walker's type in the British Museum, and the localities mentioned are from the labels in that museum.

#### Family CERATOCAMPIDÆ, subfamily BUNÆINÆ.

#### **Leucopteryx**, gen. nov.

*Imago*. — The head is partially concealed by the high overhanging thorax; it is not prominent; the front unusually wide between the eyes. The antennæ are wanting in my specimen. The vestiture of the front short, fine and wooly.

Palpi not visible, apparently 1-jointed, short, feeble and drooping. Body rather stout; the vestiture short, the hairs very fine and rather short.

Fore wings short and broad, not falcate; costa straight, a little curved towards the apex, which (though broken off) appears to be rather obtuse and subrectangular; outer edge shorter than the inner and slightly convex. Hind wings rather long, costa not very convex, apex rounded, outer edge full, well rounded, inner edge rather long, extending a little beyond the end of the abdomen.

Venation. Closely similar to that of *Heniocha terpsichore*; the first subcostal vein (II 1) arising in the same position and ending just before the apex of the fore wing; the origin of the semi-independent vein (III 3) is the same, and the discocellulars collectively make a slight inward angle; in the hind wing they make a straight line.

Markings: Ground-color white and pearl-ash gray; no definite lines on the wings of either pair. On the fore wings a moderately large round discal spot, solid in the center except a narrow, clear, linear chink. On the hind wings no complete ocellus, but a subtriangular, dark, opaque spot, with a slight linear chink or fissure.

The type of this genus is *Ceranthia? mollis* Butler, Trans. Ent. Soc. London, 1889, p. 391, Pl. 12, Fig. 5. I have had the opportunity through the kindness of Dr. H. G. Dyar of examining a female from Tana River, East Africa, north of Mombasa, collected by the Chandler Expedition for the U. S. National Museum.

*Geographical Distribution*. — Ethiopian realm, Eastern Africa, Mombasa and Tana River, north of Mombasa in British East Africa.

This genus by its venation closely approaches the African species referred to *Heniocha* (*H. terpsichore*), but differs from any of that

group in the shorter, wider fore wings, and the absence of any transverse lines. The type of Mr. Butler's description is in the British Museum.

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#### MEETING OF MAY 19.

Held at the American Museum of Natural History, Tuesday evening, May 19 at 8 o'clock.

In absence of the President and Vice-President, Rev. J. L. Zabriskie was elected to preside at the meeting.

The following members were present: Messrs. Barber, Brues, Davis, Joutel, Love, O'Connor, Southwick, Bueno, Zabriskie and visitors Mr. Martin and daughter.

Mr. Davis of the Field Committee reported that the next field trip would be to Fort Montgomery, N. Y., May 29 to 31. Also on June 14 the committee had arranged a field trip to Huguenot, Staten Island.

Mr. Engelhardt was elected an active member of the society on motion of Dr. Love.

On motion of Mr. Joutel the society voted to discontinue its meetings during June.

The first paper of the evening was by Mr. Zabriskie on the subject of "The Microscopical Study of the Food of *Trox unistriatus*."

Mr. Zabriskie stated that he had subjected some specimens of this beetle to the action of a weakened solution of caustic soda in order to prepare them for dissection. They had been collected some nine years ago from the carcass of a horse. On opening the stomach of these beetles he had discovered a great number of little black rod-like objects. He mounted some on a slide and examined under a microscope and after some investigation he had decided that they were the snipped-off butt ends of horse hairs. He called attention to the fact that all of the hairs which he exhibited under the microscope were snipped off in the same oblique manner.

Mr. Zabriskie also exhibited under the microscope the stalked eggs of *Xiphydria maculata*, one of the wood-boring wasps. Mr. Joutel exhibited some of the stages as well as drawings of some of the Bombycine larvæ from Japan. He called attention particularly to the difference in the larvæ at different moults.

Mr. Brues mentioned that he had collected recently an interesting wingless hymenopteron, *Isobrachium rufiventre* Ashm., at Ft. Lee, N. J., which was new to the New Jersey List of Insects.

Mr. Brues then read a paper on the subject of "The Sleeping Habits of Some Aculeate Hymenoptera."

Mr. Bueno stated that he had noticed that the *Cicindela sexguttata* which he had taken at Fort Lee, N. J., had a peculiar odor similar to that of an enraged bee. He also exhibited a number of live *Plea striola* taken at Van Cortlandt Park.

Mr. Davis then made some remarks about the early collection of certain butterflies as evidence of the early spring of 1903. He had taken *Lycana pseudargiolus* on Staten Island, March 28. On two previous years the butterfly has been observed